

Claims

- [c1] An electro-optic display comprising a layer of a solid electro-optic material, at least one electrode disposed adjacent the layer of electro-optic material, and a layer of a lamination adhesive interposed between the electro-optic material and the electrode, the lamination adhesive having a higher electrical conductivity in a direction perpendicular to the layer of lamination adhesive than in the plane of the layer.
- [c2] An electro-optic display according to claim 1 wherein the lamination adhesive has a conductivity of less than about 10^{-10} S/cm. in the plane of the adhesive layer and a conductivity greater than about 10^{-9} S/cm. perpendicular to this plane.
- [c3] An electro-optic display according to claim 1 wherein the lamination adhesive comprises a plurality of conductive particles dispersed in a substantially non-conductive matrix.
- [c4] An electro-optic display according to claim 3 wherein the conductive particles have a conductivity greater than about 10^{-9} S/cm. and a diameter not greater than about

one-tenth of the thickness of the layer of lamination adhesive.

- [c5] An electro-optic display according to claim 3 wherein the conductive particles are formed from a semiconducting polymer.
- [c6] An electro-optic display according to claim 3 wherein the conductive particles are formed from a low conductivity material having a polar material adsorbed on its surface to increase its conductivity.
- [c7] An electro-optic display according to claim 3 wherein the matrix has a conductivity less than about 10^{-10} S/cm.
- [c8] An electro-optic display according to claim 3 wherein the matrix comprises a gellable material,
- [c9] An electro-optic display according to claim 8 wherein the matrix comprises any one or more of a thermally reversibly gellable polymer, a radiation-gellable material or a material which can be gelled by removal of a solvent therefrom.
- [c10] An electro-optic display according to claim 1 wherein the lamination adhesive comprises a plurality of magnetizable particles dispersed in a substantially non-magnetizable matrix.

- [c11] An electro-optic display according to claim 10 wherein the magnetizable particles comprise an iron oxide.
- [c12] An electro-optic display according to claim 1 wherein the electro-optic material is a rotating bichromal member, microcell, electrochromic or electrophoretic material.
- [c13] An electro-optic display according to claim 12 wherein the electro-optic material is an encapsulated electrophoretic material.
- [c14] A process for forming a layer of an anisotropic adhesive having greater conductivity perpendicular to the plane of the layer than in this plane, the process comprising:
dispersing a plurality of conductive particles in an adhesive matrix, the particles having a complex conductivity differing from that of the matrix;
applying to the particles/matrix mixture an electric or magnetic field effective to cause the particles to form conductive strands extending substantially perpendicular to the plane of the layer; and
increasing the viscosity of the matrix to prevent the particles moving out of the strands.
- [c15] A process according to claim 14 wherein the conductive particles have a conductivity greater than about 10^{-9} S/cm. and a diameter not greater than about one-tenth of

the thickness of the layer of lamination adhesive.

- [c16] A process according to claim 14 wherein the conductive particles are formed from a semiconducting polymer.
- [c17] A process according to claim 14 wherein the conductive particles are formed from a low conductivity material having a polar material adsorbed on its surface to increase its conductivity.
- [c18] A process according to claim 14 wherein the matrix has a conductivity less than about 10^{-10} S/cm.
- [c19] A process according to claim 14 wherein the particles are magnetizable and the matrix is substantially non-magnetizable.
- [c20] A process according to claim 19 wherein the magnetizable particles comprise an iron oxide.
- [c21] A process according to claim 14 wherein the layer of anisotropic adhesive formed is thereafter laminated to a layer of an electro-optic material.
- [c22] An article of manufacture comprising, in order:
 - a light-transmissive electrically-conductive layer;
 - a layer of a solid electro-optic medium in electrical contact with the electrically-conductive layer;
 - a layer of an adhesive having a higher electrical conduc-

tivity in a direction perpendicular to the layer of lamination adhesive than in the plane of the layer.; and
a release sheet.

[c23] An article of manufacture comprising:
a layer of a solid electro-optic medium having first and second surface on opposed sides thereof;
a first adhesive layer on the first surface of the layer of solid electro-optic medium;
a release sheet disposed on the opposed side of the first adhesive layer from the layer of solid electro-optic medium; and
a second adhesive layer on the second surface of the layer of solid electro-optic medium,
at least one of the first and second adhesive layers having a higher electrical conductivity in a direction perpendicular to the adhesive layer than in the plane of the layer.